Remarks

Claims 1, 2, 5-11, 14-33 and 35-39 are in this application.

By way of background, the present invention answers a need for fabrics made from wool-synthetic blends that will meet the special requirements for aircraft interiors. As discussed in the Background Of The Invention in this application, beginning at paragraph 0002 of Scott Patent Application Publication US 2007/0214843 A1 and continuing through paragraph 0006,[1] there are advantages and disadvantages to the use of wool upholstery fabrics in the aircraft industry which sets specifications for seat cover fabrics including flammability, smoke and toxicity requirements. A wool upholstery fabric has disadvantages due to cost and the dry-cleaning process, as water-based cleaning solutions present a shrinkage problem. Synthetic fibers are typically highly resistant to shrinkage but tend to be highly flammable. Thus, wool-synthetic blends are typically neither flame-resistant nor shrink-resistant when washed in water. Accordingly, the present invention is directed to the production of a dimensionally stable, fire-resistant fabric suitable for use on aircraft employing a blend of wool fibers and fire-resistant synthetic fibers which is washable and dimensionally stable. This is accomplished in the present invention, as claimed, by providing a yarn having a blend of wool fibers and fire-resistant synthetic fibers, woven to form a fabric, and dimensionally stabilized to achieve a washable woven structure resistant to shrinkage.

The claims in the present application are directed to the solution to the problem. Wool fibers are specially prepared and combined with synthetic fibers to form a fabric that is dimensionally stabilized to create a woven structure resistant to shrinkage for use in aircraft and

[1] Further references to the specification of this application are to the numbered paragraphs in the published application US 2007/0214843 A1, published September 20, 2007.

other transport interior applications. As set forth in claim 1 as amended herein, the wool fibers are prepared by stretch-breaking an effective percentage thereof to a length no great than approximately 5 centimeters. A yarn is provided having a blend of the wool fibers and fire-resistant synthetic fibers, wherein the wool fibers comprise approximately 30 percent to 70 percent of the blend and have diameters of approximately 13 to 25 microns. This yarn is woven to form a fabric and stabilized to resist shrinkage, as set forth in amended claim 1 and supported by, for example, paragraphs 0012 and 0013 of the specification.

Dependent claims 5-8, for example, further define the claimed method of producing a dimensionally stable fabric and further define stabilizing the fabric dimensions to create a woven structure resistant to shrinkage. This aspect is set forth in the specification, for example, at paragraph 0023. Heat-setting is set forth in dependent claim 20; see the specification at paragraph 0023. The fabric is affixed within a stenter frame for dimensional control during the heat-setting process as set forth, for example, in dependent claims 21 and 27.

In re Rose and Gardner v. TEC Systems, Inc. are inapplicable

In the rejections under 35 U.S.C. § 103 on obviousness, the cited decisions relate to mere scaling up of a prior art process and recitations of relative dimensions of the device with no difference in performance, both of which are inapplicable to the present application. As will be pointed out when the claims are discussed in detail hereinbelow, the present invention is not merely a matter of scaling up processing variables or claimed relative dimensions. Instead, applicant is claiming a new and novel method of producing a dimensionally stable fabric having particular application in the aircraft industry, and producing an end product that is a fabric which is dimensionally stable, fire-resistant and suitable for use on aircraft because of a unique blend of

wool fibers and synthetic fibers having particular fiber dimensions and processing steps that enable the fabric to pass airline specifications and, in particular, dimensional stability that provides a long wear life and maintains standards for appearance, snag-resistance, pilling resistance, color fastness and strength.

The Amended Claims

Amended claim 1 is directed to a method of producing a dimensionally stable fabric that includes preparing wool fibers by stretch-breaking an effective percentage thereof to a length no greater than approximately five centimeters. This is supported in the specification at paragraph 0012. The next step is the providing of a yarn having a blend of these wool fibers and fire-resistant synthetic fibers, wherein the wool fibers comprise approximately 30% to 70% of the blend and have diameters of approximately 13 to 25 microns. The yarn is woven to form a fabric, and the fabric is stabilized to create a woven structure resistant to shrinkage for use in aircraft and other transport interior applications.

The fabric as claimed is neither shown nor suggested by the cited prior art. Claim 1 is not a general statement of admixing wool fibers and synthetic fibers. The claim calls for preparation of the wool fibers by stretch-breaking, sets forth a specific length thereof no greater than approximately 5 centimeters, calls for a blend of the wool fibers and fire-resistant synthetic fibers with a percentage range for the blend set forth, along with a range of diameters of the wool component of approximately 13 to 25 microns. The result is a dimensionally stabilized fabric that provides a textile that passes aircraft manufacture specifications, and overcomes the previous problems in this art including, for example, shrinkage of wool-based fabrics in response

to water-based cleaning solutions, and dimensional stability to prevent or substantially reduce shrinkage during use. With respect to stabilizing, this is specifically addressed in claims 5 and 6 where heat setting the fabric is set forth in claim 5, and more specifically defined in claim 6 which calls for securing the fabric within a stenter and heating the fabric to a temperature within the range of 170 to 200° C. for approximately 30 seconds. Stabilizing is further defined in dependent claims 7 and 8, and specific polymers are set forth in claims 9 and 10.

Claim 11 as amended is a method claim calling for spinning and weaving to form the fabric utilizing the 30%/70% blend, and heat-setting the fabric thus formed in a stenter.

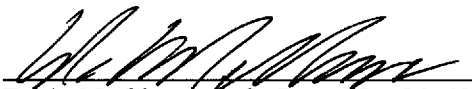
Claims 15-23 include additional aspects of the claimed method, including dimensionally stabilizing the fabric (claim 15), the use of particular spinning apparatus set forth in claims 16-18 and the application of a coating to the fabric to produce a dimensionally stabilized fabric resistant to shrinkage. In claim 20, dimensional stabilization is accomplished by the application of heat to the fabric. Claim 22 calls for the application of zirconium fire retardant. Claim 24 is an independent claim calling for Vortex spinning the fibers to produce a yarn having the stated wool fiber to synthetic fiber ratio. Claims 25-33 and 35-38 are directed to additional aspects of the present invention; note that claims 25, 26, 32 and 33 are amended to state that the fabric is heat-set to pass Airbus and Boeing specifications, set forth in the specification at paragraph 0023.

Independent claim 39 is a new claim directed to a method of producing a dimensionally stable fabric comprising the steps including preparing wool fibers by stretch-breaking an effective percentage thereof to a length no greater than approximately five centimeters, providing a yarn having a blend of fire-resistant synthetic fibers and the wool fibers,

weaving the yarn to form a fabric and stabilizing the fabric dimensions. In addition, claim 39 specifically calls for the wool fibers comprising approximately 30% to 70% of the blended yarn and having diameters of approximately 13 to 25 microns. This is a particularly advantageous range embracing wool that has attributes of both softness and abrasion resistance.

In conclusion, it is important to realize that the present invention, as claimed, is "for use in aircraft and other transport interior applications" (Claim 1). The other independent claims 11, 15, 24 and 31 also specify aircraft or transport applications, which is a salient art. Furthermore, in this art seat cover fabrics must comply with the relevant flammability, smoke and toxicity requirement of the aircraft standards. It is a defined art with unique problems to which the claims of this application are specifically directed. Accordingly, reconsideration by the examiner and allowance of the foregoing claims is respectfully requested when this application is next reached for attention.

Respectfully Submitted,



D. A. N. Chase, P.O. Reg. No. 20,682
CHASE LAW FIRM, L.C.
James J. Kernell, P.O. Reg. No. 42,720
Ginnie C. Derusseau, P.O. Reg. 35,855
800 W. 47th Street
Kansas City, Missouri 64112
Telephone: (816) 753-6777
Facsimile: (816) 753-6888

Attorneys for Applicant